IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jacques Villiers	)
Serial No.:	10/556,559	))
Conf. No.:	8944	)
Filed:	November 14, 2005	)
For:	DEVICE AND METHOD FOR PROVIDING AUTOMATIC ASSISTANCE TO AIR TRAFFIC CONTROLLERS	)))))
Art Unit:	3663	)
Examiner:	Redhwan K. Mawari	)))

Pre-Appeal Brief Request for Review

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

            Applicant requests a pre-appeal review of the outstanding final rejections of

the pending claims in this Application based upon the attached remarks.

                           Respectfully submitted,

                           GREER, BURNS & CRAIN, LTD.

May 26, 2011
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An inadequate examination is demonstrated by the record of this prosecution and, in particular, unsupported misrepresentations of the applied prior art and omission of several claim features from consideration. Fairness dictates that the rejections be withdrawn and the Application allowed without subjecting Applicant to the delay and expense of a full appeal.

I.   The Claimed Device Enhances Air Traffic Control

The claimed device resolves air traffic conflicts in the present "fixed route" system (trajectories are pre-determined routes). Conventional air traffic control requires air traffic controllers to make decisions on all air traffic control issues. In some advanced systems, air traffice controllers are provided with conflict advisories presented by ground computers where the ground computers never automatically transmit conflict resolutions to aircraft for respecting the basic rule that there can be only one decision maker in a given piece of airspace. The fact is unknown that this last rule can be circumvented in automatically selecting modifications in flight parameters so minor as not interfering with controllers own decisions and which therefore can be automatically transfer to pilots without prior controllers review (more explanations are provided in pages 10 lines 4 to 29 of the Applicant's application).

Moreover, Applicant found that such minor modifications to the flight parameters initiated sufficiently in advance are sufficient for solving greater than 80% of all air traffic conflicts. The capacity of present air space is limited by the capabilities of human beings to handle real time data. Thus, the claimed device efficiently reduces

conflicts left to be solved by air traffic controller's traffic control decisions, which enhances air traffic control and air space capacity.

II. The Examiner Misinterprets Kirk, Choate and Constant in Rejecting Claims 29-39, 43-49 and 52

Kirk discloses a method for generating conflict resolution for air traffic control in a "free flight" system (aircraft are allowed to fly in any desired trajectory) using Problem Analysis, Resolution and Ranking (PARR). PARR is a technique for generating resolutions for air traffic control aircraft problems for aircraft with path constraints to make sure that the resolutions are easily cleared to the pilot of the aircraft with an optimized flight plan (Col. 5, lines 24-30). The completed PARR resolutions are ranked and displayed to a flight controller 20 to select and implement one of the displayed resolutions (Col. 6, lines 49-55) where each resolution is a complete trial plan that returns the aircraft to its original route or destination.

The "free flight" system described in Kirk is more complex than the conventional "fixed route" traffic control system in place in most of the world. In Kirk, the conflict resolutions are always displayed to the flight controller who then selects and implements one of the resolutions or modifications to the flight parameters of an aircraft. Such resolutions or modifications are <u>not</u> so "minor as to not interfere with the air traffic controllers' decision making process." Therefore in Kirk, the flight controller must actively decide on a resolution or modification to implement. Thus, Kirk does not disclose or suggest that the resolution or flight modification is sent or can be sent automatically to the aircraft without being reviewed and selected by the air traffic controller.

Choate discloses a communication system that controls multiple two-way radiotelephone conversations between several aircraft 53 and a network of base stations 51 (see FIGs. 1 and 6). The system therefore controls the communications between the ground stations and the aircraft but <u>not the messages</u> in those communications. Choate therefore does not remedy the deficiencies of Kirk.

The Examiner states in the Final Office Action, that given the broadest interpretation of the cited art, Constant teaches automatic aircraft conflict resolution "without the air traffic controller's prior agreement." (page 11, second full paragraph). The Examiner misinterprets Constant.

Constant discloses a system for aiding the movement of moving units such as helicopters when flying in a close formation. Each of the moving units has bidirectional communication such that each unit can accurately determine the position of every other unit in the formation. A leader unit then communicates with the other units regarding the positions of the units in the formation and the other units (slave units) then move to the designated positions. Thus, the fully automated communication between the flying units in Constant do not imply any human/machine relationship problems. i.e., between the pilots of the units between a flight controller on the ground and aircraft. Furthermore, Constant discloses moving the helicopters to designated positions relative to each other, but it does not disclose any type of conflict resolution amongst the helicopters if there is a malfunction and the position information is not correct or conflict resolution with other aircraft in the same area.

Thus, even given the broadest interpretation of Constant, Constant fails to disclose or suggest automatically altering flight parameters based on potential air

conflicts amongst the helicopters or with other aircraft and the group of helicopters. Pre-determining the positions of the helicopters in the formation is not the same as determining minor conflicts between the helicopters or other aircraft flying in the same airspace and then automatically altering the flight parameters/paths of the group of helicopters and aircraft.

Independent claim 52 includes similar subject matter to independent claim 29. For the above reasons, Applicant requests that the rejections of claims 29-39, 43-49 and 52 over the combination of Kirk, Choate and Constant be withdrawn.

III. The Examiner Misinterprets Kirk, Choate, Constant and Erzberger in Rejecting Claims 29-39, 43-49 and 52

As stated above, the combination of Kirk, Choate and Constant fails to disclose or suggest the subject matter of claims 29 and 52. The Examiner does not provide a basis to reject independent claim 29 over the combination Kirk, Choate, Constant and Erzberger. Also, the Examiner does not provide a basis for rejecting claim 52 over the combination Kirk, Choate, Constant and Erzberger. Applicant therefore submits that claims 29 and 52 are each patentably distinguished over the cited art for the reasons provided above.

Furthermore, Erzberger applies to the existing pre-determined routes network and discloses a method and system for an automated tool for en route traffic controller that finds all aircraft flying on inefficient routes and then determines whether it is possible to save time by bypassing some route segments and determining whether the improved route(s) are free of conflicts with other aircrafts. The method includes the steps of searching for and identifying tracked aircraft and their associated flight plans, selecting

those which could benefit from direct routes that will reduce the time of the flight to the destination, identifying potential conflicts along the selected routes and updating the flight plans of the tracked aircraft so the aircraft can benefit from one or more of the direct routes.

Applicant submits that changing some of the route segments to direct routes are major changes to the flight patterns of aircraft and therefore are not "minor" modifications. Such modifications therefore require an air traffic controller to review and approve before the modifications are implemented.

Consequently the Erzberger's system does not automatically transmit modifications to the flight parameters of an onboard computer of an aircraft as recited in amended claims 29 and 52. Instead, the conflict information is advisory only and is still reviewed by an air traffic controller to make a decision on whether to change the flight path of an aircraft. Erzberger's system therefore involves significant air traffic controller review and attention (see the Abstract; Col. 5, lines 4-6; Col. 8, line 54 to Col. 9, line 7).

IV. Conclusion

Applicant asks that this pre-appeal review request be sustained, and the Application allowed. As no sufficient rejections have been established, the pendency of this Application should be ended with issuance of Notice of Allowance.

Respectfully submitted,

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